

EDITORIAL

Foodomics and food analysis in the post-genomics era

Foodomics has been defined as a discipline that studies the domains of food and nutrition through the application of advanced omics technologies (including genomics, epigenomics, transcriptomics, proteomics and metabolomics) to acquire knowledge about issues related to bioactivity, quality, safety and traceability of foods.

The final aim of foodomics is to use the acquired knowledge to improve consumer's well-being, health, and confidence. This Special Issue of Trends in Analytical Chemistry (TrAC) aims to provide the scientific community with the latest advances in "Modern Food Analysis and Foodomics". It includes top-line review papers from recognized experts in the field showing technologically and methodologically innovative strategies, together with the current trends and applications of advanced analytical techniques and methods. Among the many methods and applications covered in this Special Issue are foodomics strategies for the analysis of transgenic foods, foodomics to investigate meat tenderness and microbial safety, mass spectrometry (MS)-based metabolic profiling analysis for foodomics and green foodomics. Also, the Special Issue covers metabolomics approaches based on MS for food safety, quality and traceability, metabolomics tools to investigate diet-related diseases, including bioactivity and efficacy of nutrients, novel MS-based approaches and applications in food metabolomics, metabolomics consequences of plant-food intake in humans, proteomics for food authentication, food technology and detection of allergens in foods, the study of the microbial metabolome of the human gut, applications of transcriptomics in food science, chiral separations in food analysis, nano-liquid chromatography and comprehensive chromatography in food analysis, the latest developments and applications of MS in food safety and quality, and the study of carbohydrates as new functional ingredients from herbs and herbal glycomics.

The analytical procedures required by the different instrumental methods are highlighted and recent applications are presented.

Each of the articles endeavors to describe the context of the issues under consideration and explains how the problems are being addressed.

We hope that this Special Issue will give readers a broad overview of the possibilities of modern analytical methods in the domains of food and nutrition.

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